

Name: _____

Date: _____

A2CC Q4T2 Review

In addition to these questions, you also need to complete the June 2016 Part 1 (#1-24 skip 2, 7, 9, 11)

1. If $f(x) = 10\sin(2x) + 8$ then $f\left(\frac{\pi}{4}\right) = ?$

(1) $4\sqrt{2}$

(3) 18

(2) 8

(4) $28\sqrt{3}$

2. Which of the following represents the range of the function $y = -6\sin(x) + 10$?

(1) $-60 \leq y \leq 60$

(3) $-16 \leq y \leq 4$

(2) $0 \leq y \leq 20$

(4) $4 \leq y \leq 16$

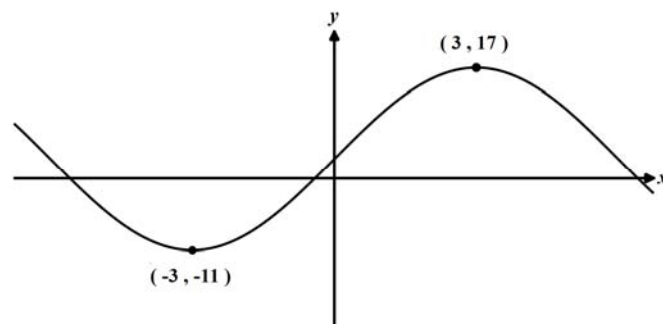
3. Given the sinusoidal graph with coordinates shown below, which of the following is the value of its amplitude?

(1) 14

(3) 12

(2) 6

(4) 28



4. A periodic function has an equation $y = 10\cos(8x) - 2$. What is the horizontal distance between any two consecutive relative maximums on this graph?

(1) 10

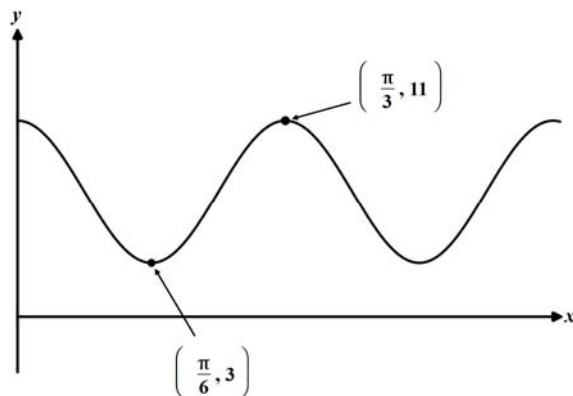
(3) 8

(2) $\frac{\pi}{2}$

(4) $\frac{\pi}{4}$

5. The graph shown below can be described using the equation $y = A \cos(Bx) + k$. Which of the following is the value of $B + k$?

- (1) 5π
- (2) 13
- (3) 11
- (4) $\frac{\pi}{7}$



6. Which of the following lines would the graph of $y = -5 \sin(x) + 14$ *not* intersect?

- (1) $x = 0$
- (2) $x = \pi$
- (3) $y = 20$
- (4) $y = 9$

7. A person riding a Ferris wheel at a local fair makes one complete trip around in 10 minutes. Their height can be modeled using a sine function of the form $y = A \sin(Bt) + C$, where t is the amount of time the person has been traveling, in minutes. Which of the following must be the value of B ?

- (1) 10
- (2) $\frac{1}{20}$
- (3) 10π
- (4) $\frac{\pi}{5}$

8. The volume of water in a tank varies periodically. At $t = 0$ it is at its maximum of 650 gallons and at $t = 5$ it is at its minimum of 120 gallons. Which of the following functions would best model the volume of water in this tank as a function of time in hours?

- (1) $V = 265 \cos\left(\frac{2\pi}{10}t\right) + 385$
- (2) $V = -770 \sin(10t) + 385$
- (3) $V = -385 \cos(5t) + 265$
- (4) $V = 265 \sin\left(\frac{\pi}{10}t\right) + 770$

9. The terminal ray of an angle drawn in standard position passes through the point $(.508,.862)$ on the unit circle. Which of the following is closest to the tangent of this angle?

- (1) .685 (3) 1.697
(2) 1.291 (4) 2.883

10. If α is an angle drawn in the standard position with its terminal ray landing in the fourth quadrant and $\csc(\alpha) = -5$, then which of the following is the exact value of $\cos(\alpha)$?

- (1) $-\frac{1}{5}$ (3) $\frac{\sqrt{24}}{5}$
(2) $-\frac{24}{25}$ (4) $\frac{\sqrt{6}}{2}$

11. For the angle θ it's known that $\cot(\theta) < 0$ and $\sin(\theta) > 0$. In which quadrant does the terminal ray of θ lie?

- (1) I (3) III
(2) II (4) IV

12. For an angle A it is known that $\sin A = \frac{3}{4}$ and $\cos A < 0$. Determine the value of $\tan A$. Show how you arrived at your answer.

13. For the function $f(x) = A \sin\left(\frac{\pi}{5}x\right) + k$, it is known that $f(3) = 7$. Explain why $f(13)$ must also equal 7.

14. For the function $f(x) = 6\sin(10x) + 8$, explain why the equation $f(x) = 0$ would fail to have any solutions.

15. Given the following circle (note that it is **not** the **unit circle**) with the angle θ marked, state the values of each of the following:

(a) The radius of the circle

(b) $\sin \theta =$

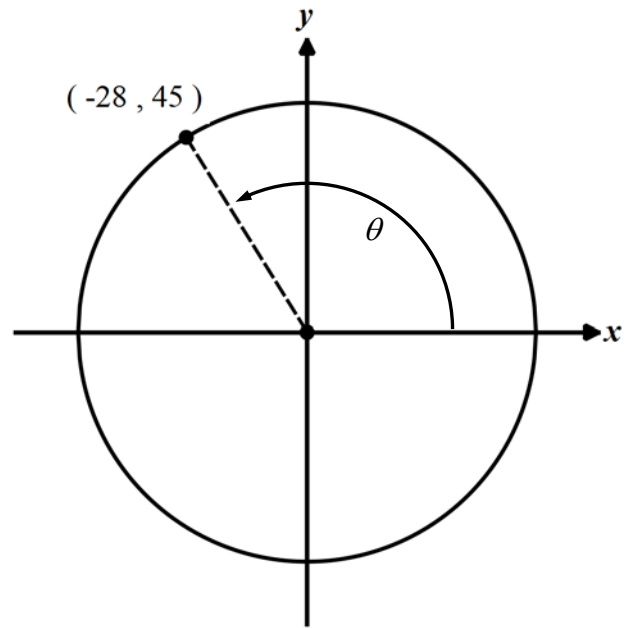
(c) $\cos \theta =$

(d) $\tan \theta =$

(e) $\sec \theta =$

(f) $\csc \theta =$

(g) $\cot \theta =$

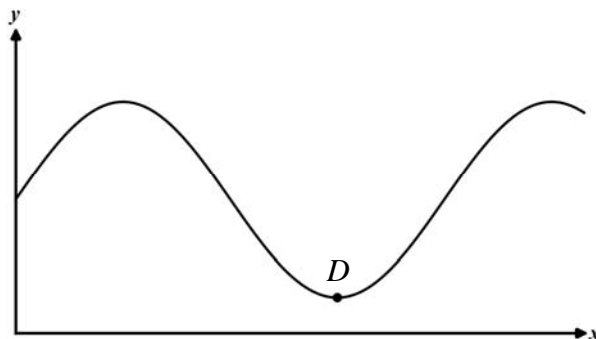


16. A person's height, in feet above the ground, on a Ferris wheel can be modeled using the equation $h(t) = -45\cos\left(\frac{\pi t}{7}\right) + 52$, where t is the time the rider has been on the wheel in minutes. What is the maximum height the rider reaches and the time it takes to first reach this height if they get on at $t = 0$. Explain how you arrived at your answer.

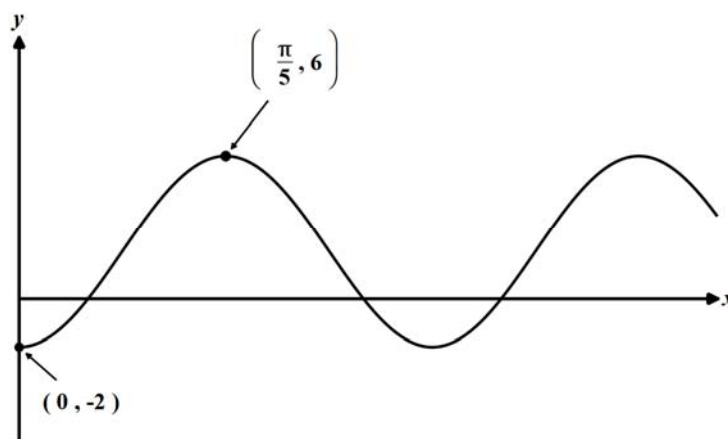
17. If the function $y = A\sin\left(\frac{\pi}{8}x\right) + C$ is graphed below, answer the following questions about point D marked.

(a) What is the numerical value of the x -coordinate of point D ? Show how you arrived at your answer.

(b) What is the y -coordinate of D in terms of the constants A and C ?



18. The graph shown below can be modeled using the equation $y = A\cos(Bx) + C$. Determine the values of A , B , and C . Show how you arrived at your results.



19. Which of the following could *not* be the probability that event A occurs?

(1) $\frac{3}{5}$

(3) 1.25

(2) 0.49

(4) $\frac{1}{2}$

20. The following table shows the results of a survey of people in terms of what type of breakfast they prefer. Based on the table, what is the probability that a person picked at random is over 40 and eats eggs for breakfast?

(1) 0.32

(3) 0.63

(2) 0.47

(4) 0.8

	Eats Cereal	Eats Eggs
40 and under	23	17
Over 40	21	29

21. If a standard six sided die is rolled once, what is the probability that the number rolled is either an even or a multiple of 3?

(1) $\frac{1}{6}$

(3) $\frac{5}{6}$

(2) $\frac{1}{2}$

(4) $\frac{2}{3}$

22. Prime numbers are positive integers that are only divisible by 1 and themselves, i.e. the set $\{2, 3, 5, 7, \dots\}$. If a random number is generated from 1 to 20, what is the probability that it is *not* prime?

(1) 0.2

(3) 0.6

(2) 0.5

(4) 0.8

23. Of all the tourists who visit Florida, 38% of them will visit an amusement park and 54% will visit a beach. If 22% will visit both an amusement park and a beach, then what percent will visit either a park or a beach?

(1) 16%

(3) 30%

(2) 70%

(4) 92%

24. If a restaurant is chosen at random in Rhinebeck then there is an 84% chance that it is open on Sunday and a 42% chance that it is open on Monday. If there is a 96% chance it is open on either Sunday or Monday, what is the probability that it is open both days?

(1) 30%

(3) 44%

(2) 38%

(4) 50%

DO NOT FORGET TO DO THE JUNE 2016 PART 1 (SKIP #2, 7, 9, 11)

